

ITY PLANS

25X1

May 3, 1955

Objectives

For the purpose of discussion, let us divide the test program on each configuration into three phases:

- Phase I Check-out and shake-down of equipment performance
- Phase II Operations and mission experience
- Phase III Personnel training

These phases may overlap to some extent but, with respect to any single configuration, should be run in sequence. In Phase I we will attempt to establish the proper operation of all airborne equipment for the expected mission profiles. We will expect to establish that all photographic equipment is in proper focus at altitude. In addition, we wish to evaluate the resolution obtainable under simulated mission conditions during this phase. During Phase II our primary aim will be to accumulate experience in the physical handling of the equipment and photograph material under conditions approximating those to be expected at operational bases. In addition, we will wish to acquire photographs of a wide variety of subject material so as to be in a position to evaluate the usefulness of such photographs and the limitations imposed upon operations by weather conditions. In Phase III we will attempt to provide actual on the job training for the handling crews to be used at operational bases.

Facilities

Facilities required for the realization of these objectives fall into two classes; those facilities which will form part of the testing equipment, and those which provide for the housing of transient activities. In the first category as Item 1, we would like a number of resolution targets. These targets are made up of dark lines spaced a distance equal to their width. They are about three times as long as they are wide. The greatest spacing required is 24' center to center, and the smallest spacing is 6" center to center. Two sets of targets should be constructed; one set in which the reflectivity of the white portion, that between the lines, is as high as it can be reasonably obtained. Sixty percent reflectivity is a good objective. As to the black lines, 6% reflectivity is what results from normal flat black paint and any alternative should be as low in reflectivity. The other set of lines should be about 12% reflectivity, dark gray between lines, and the black again near 6%. I have not had an opportunity to lay out the exact form of these targets and it would be a mistake to construct them at this early date in any case since they will deteriorate rapidly, but it is clear that a space between 80 and 100 feet square will be required for each one. A strip 80 x 10 feet along the side of each target should be painted in successive steps of grayness from 60% reflectivity to 6% reflectivity. A set of white lines on a dark background or a set of black lines on a white background are equally acceptable.

Item 2. For certain evaluation studies of Configuration C, it would be desirable to illuminate at night a small portion of one of these targets to nearly daylight brightness. This portion would be of the order of 4' square, and our preliminary calculations indicate that 3 KW of incandescent light should be sufficient. The targets mentioned in Item 1 could be floodlighted from the side and from several points within, or boxes with opal glass tops lighted from below could be constructed. This decision need not be made now but the 3 KW of power will be required.

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Item 3. We wish to set up a device like one constructed during the war to study the effect of vibration on the resolution of the long focal length camera. The results of this study will assist in improving the resolution very significantly. The device consists of a search light and rotating mirror which together scan a high intensity light beam along a line of reflectors. In this installation, we would require a concrete block about 6' square and perhaps 2' thick set with its upper surface approximately flush with the ground. Four 2" anchor bolts set in the form of a square 5' on a side would provide hold down for the base plate of the rotor and search light combination.

Approximately 3000' away from this base should be set a line of posts. These posts could be of wood but the top should be flat. The tops of all the posts should lie at the same level to  $\pm 2"$  and in a straight line to  $\pm 2"$ . The posts should be at least 4" square and extend a foot above ground. They should go deep enough to stay put. Sixty posts on 10' centers will be required. The line of the posts is perpendicular to the 3000' distance from the concrete base (center of the line opposite the base). It would be most convenient to have the targets mentioned under Item I located near the center of the line of posts. It is estimated that power for a 5 hp motor plus 1 KW for the light will be required at the concrete base.

Examination of our personnel requirements indicate that living facilities for seven people until the advent of Phase III would be sufficient. During the Phase III training operation, it is expected that fourteen or fifteen people will be in nearly continuous attendance at the test base for periods of 3 to 4 weeks.

Present scheduling indicates that the first set of vans will be available December 1, but that the first A-1 system will be ready for test August 1. Thus, some interim facilities will be required for the period from August 1 to December 1. These facilities should consist of a room in which the activities, later to be carried on in the vans, can be housed. While the space provided by the vans totals 960 square feet, it is felt that 600 square feet would be satisfactory for the activities involving Phase I and Phase II. This space should be air conditioned primarily for dust and dirt control since it is not expected that quantities of film will be stored for any significant period. The vans are scheduled to be equipped with 50 KW 110V AC 60 cycle power, half of which will be used for air conditioning them. It is therefore required that the space facility have available 110V, 60 cycles, 25 KVA. No water treatment facility will be available until the arrival of the first set of vans but water will be required in the amount of 200-300 gallons per flight. This is the amount estimated for the treatment of sample films and would not be adequate for the handling of complete missions. It is our intent to return such films to better facilities.

It is desired that a slab or compacted area, 25'x75', be available upon which to park the vans upon their arrival. The van arrangement as illustrated in the project plan requires access to either side of the slab at the middle of the 75' dimension by a fork lift truck.

It is assumed that transportation for personnel, equipment and film will be readily available on nearly a daily trip basis, and that living facilities for the previously mentioned numbers of people will be supplied.

RIS/dmg